

Terms of Reference – Panel on Space Weather (PSW)

1. SCOPE AND OBJECTIVES OF THE PANEL ON SPACE WEATHER

There is a rapidly increasing use of spacecraft for communication, navigation, remote sensing, and the provision of vital information such as timestamps and positioning. There is also an ever-increasing human activity in space and at high altitudes, and a rapidly-growing dependency on, and vulnerability of, ground-based infrastructure for energy, navigation, and communication. Thus it has become all the more important to have a full understanding of Space Weather – the potentially harmful impact of the space environment on both humans and advanced technological systems in space and on the ground.

The purpose of the Panel on Space Weather is to provide to society, through COSPAR, expert knowledge on the variability of the space environment, and to encourage and enable the development of predictive techniques capable of forecasting any resulting, potentially harmful, changes in solar, heliospheric, magnetospheric, ionospheric, and atmospheric environments, at Earth and other planets.

Such predictions and analyses must allow steps to be taken for any affected infrastructure and human activity to mitigate, by action or design, as well as to recover from any such potential threat or impact. The Panel will act as a source of guidance to the COSPAR Scientific Commissions on matters pertaining to Space Weather that cross the disciplinary boundaries of those Commissions. The Panel will coordinate an active network of topical scientific action teams and organise regular symposia, workshops, and topical meetings at COSPAR Assemblies and elsewhere. Through COSPAR, the Panel will inform the international community, e.g. the UN Committee on the Peaceful Uses of Outer Space (COPUOS), as well as various other relevant organisations and agencies, on scientific consensus and recommendations pertaining to Space Weather.

Through the topical action teams the Panel will also regularly assess progress in various areas of Space Weather (particularly on the scientific advancements) with respect to current Space-Weather roadmaps (e.g. the COSPAR ILWS roadmap on Space Weather, *Schrijver et al.*, 2015). The panel will also propose updates to such guiding documents on a regular basis for the benefit of science activities in the COSPAR Commissions, as well as the activities of the UN Office of Outer Space Affairs (UNOOSA) and any future global space-weather coordinating mechanisms.

2. PANEL MEMBERSHIP

The Panel

- is led by a Chair with the support of up to four Vice Chairs appointed by the COSPAR Bureau;
- includes COSPAR Bureau appointed members who represent major space agencies and other organisations involved in Space Weather observation, data exchange, product and service delivery, and operational applications, such as those represented in any future UNOOSA-established International Coordination Group on Space Weather;
- may include scientific representatives of COSPAR Scientific Commissions, COSPAR's National Scientific Institutions, and International Scientific Unions; and
- may include topical action team moderators and active participants.

The Chair of the Panel is chosen for his or her stature as an established leader of international space science, and ability to oversee the expeditious execution of the Panel's responsibilities. The appointment of the Chair is for four years, and is renewable only once. Of the Vice Chairs one is appointed by the UNOOSA, which launched in 2009 the International Space Weather Initiative. The other Vice Chairs are chosen for their detailed knowledge of Space-Weather issues and may concurrently represent a national or international authority or organisation. The appointment of each Vice Chair is for four years and is again renewable only once.

3. PANEL OPERATION

The Chair of the Panel, or his or her appointee, will convene all official meetings of the Panel at which major issues concerning Space Weather, as well as any recommendations to the COSPAR Bureau and Council, are discussed. The Chair will determine the agenda for the meeting, soliciting inputs from the Vice Chairs, members, and other participants in the Panel meeting. The announcement of an official meeting of the Panel will be made at least two months in advance, and when possible will occur in concert with COSPAR Assemblies and Symposia, other relevant scientific meetings, and/or Bureau meetings to encourage maximum open attendance. In special circumstances, meetings, and the discussions and determination of a general consensus position, can be held electronically.

The Chair and Vice Chairs will also oversee and facilitate the continuous activities of the topical action teams between the formal Panel meetings. The moderators of topical action teams will report to the formal Panel meetings about recent team activities. The topical action team moderators will prepare and propose content for formal updates of the guiding roadmap document to the Panel for further discussion. At least every four years the Panel will formally recommend an updated Space Weather roadmap document, based on the input received by moderators or any other Panel members, to be approved by the COSPAR Bureau (this need not to be a formal peer reviewed document.) Thus, the current Space-Weather roadmap document will develop into a living document for the continued benefit of the international coordination on Space Weather.

Any proposed recommendations that are to be submitted to the Bureau and Council for adoption must be established by a general agreement of the Panel, including the Chair and Vice Chairs, members, and other participants present at, or participating electronically, in the official meeting.

The Chair of the Panel is also responsible for ensuring that the Panel informs the international community, e.g. the UN Committee on the Peaceful Uses of Outer Space (COPUOS), as well as various relevant organisations, of COSPAR recommendations concerning Space Weather, any updates in the COSPAR scientific roadmap on Space Weather, and any scientific contributions to the international coordination on Space Weather. The outputs from the Panel will be widely disseminated, including through the regularly-updated Panel website.

1.1. PANEL REPORTING TO COSPAR

Reports of Panel activities, and any recommendations pertaining to Space Weather, are made to the COSPAR Bureau and Council.

Adopted 19 July 2018.